

AUTOMATIC QUESTION PAPER GENERATOR

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Abstract: *The project automatic question paper generation system will enable college authorities to automatically generate question papers out of existing question bank in the database. The system will have capability to process different unique sets of papers very automatically. It takes over the entire tedious task and does the manual, laborious work swiftly and efficiently. The paper generator is the one & only software for setting examination question paper. Software is very useful for small medium and large scale institutes. The software will use the database to harness the question paper where the database could consist thousands of questions. The software will produce random question paper set such that the question does not repeat in the same paper. The software will empower the college with a powerful tool to generate question papers in a very short span of time thus saving a lot of their precious time.*

Keywords: *automatic, paper, question, generator, SQL, Microsoft SQL, AQPG, exam.*

I. INTRODUCTION

Generating question paper is long and tedious process in a university or institution. The professors spend their precious time in designing the question paper which is a not acceptable in these days. This system come in rescue to professors and helps to create question papers in single click without repeating the same questions again and works in very simple manner. This system utilizes the SQL queries to solve the problem of randomizing the questions every time. As we move ahead we need more resources to fulfill our requirements and that's why this Automatic Question Paper Generator was designed. It's very much different from other paper generation systems. It utilizes the power of Microsoft SQL to generate the paper. The questions are stored in the database and new questions can be added later on if needed.

This system is so powerful that we can generate one question paper in just one second. Its primary characteristics is the automation of process of creation of question paper which reduces human effort to very far extent. Although it's most prevalent use is within the universities to generate the question paper. It is also applicable to some institutions too. Automatic Question Paper Generator system is .Net based application to provide robustness and feasibility in making question papers .Administrator can view the generated question paper sets and can modify the database to suit their needs or of institutions. It increases the usage of technology. Also, Administrator has all rights to modify the database. It will help an administrator to access or view the questions and edit them on the go. The system also provides security to the database so that only trusted and permitted people can access it. The present project has been developed to meet the aspirations indicated in the modern age. An attempt has been made through this project to do all work ease & fast.

Software required:

- Microsoft SQL Server 2016
- Microsoft Visual Studio 2015 Community edition

A. Microsoft SQL Server 2016

Microsoft SQL Server is comprehensive, integrated data management and analysis software that enables organizations to reliably manage mission-critical information and confidently run today's increasingly complex business applications. SQL Server allows companies to gain greater insight from their business information and achieve faster results for a competitive advantage.

B. Microsoft Visual Studio

Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs for Microsoft Windows, as well as web sites, web applications and web services. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight. It can produce both native code and managed code. Visual Studio includes a code editor supporting IntelliSense as well as code refactoring. The integrated debugger works both as a source-level debugger and a machine-level debugger. Other built-in tools include a forms designer for building GUI applications, web designer, class designer, and database schema designer. It accepts plug-ins that enhance the functionality at almost every level—including adding support for source-control systems (like Subversion) and adding new toolsets like editors and visual designers for domain-specific languages or toolsets for other aspects of the software development lifecycle (like the Team Foundation Server client: Team Explorer).

Visual Studio supports different programming languages and allows the code editor and debugger to support (to varying degrees) nearly any programming language, provided a language-specific service exists. Built-in languages include C, C++ and C++/CLI (via VisualC++), VB.NET (via Visual Basic .NET), C# (via Visual C#), and F# (as of Visual Studio 2010). Support for other languages such as Python, Ruby, Node.js, and M among others is available via language services installed separately. This system is mainly based upon programming language C#. C# was designed by Microsoft itself to build windows applications. It's same as Java and C++ programming languages. But it requires .NET frameworks to work. Applications designed in C# requires the respective version of .NET framework installed in the computer to work, just like Java does.

Automatic Question Paper Generator system is required for the following purposes:-

- Generate Question Paper sets.
- Allowing administrators to add and remove the questions in the database.

- Modify the weightage of questions.
- Print the generated question sets.

II. PROPOSED MODEL

Automatic Question Paper Generator is special software which is useful to schools, Institutes, publishers and test paper setters who want to have a huge database of questions and generate test papers frequently with ease. It mainly deals with the gathering, sorting and administration of a large amount of questions about different levels of toughness from scientific as well as non-scientific subjects related to various classes. This paper introduces the usage of shuffling algorithm in Automatic Question Paper Generator System to overcome the mentioned problem. The main part of the shuffling algorithms is to provide randomization technique in question paper generation system, thus different sets of question could be generated without repetition and duplication. Fig. 2.1 displays the general block diagram of Automatic Question Paper Generator System.

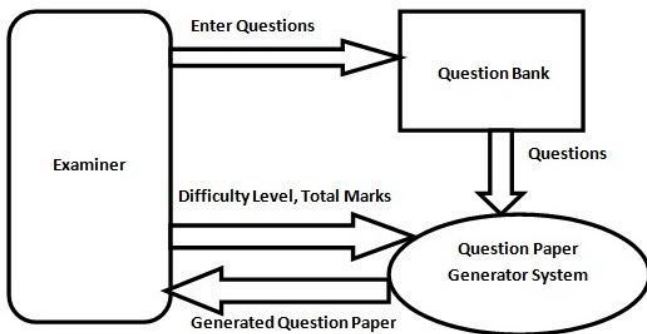


Figure 1. Working of Automatic Question Paper Generator This system is based on the North Maharashtra University paper pattern and generates paper of that pattern only but the system can be modified to suit other universities too.

III. ALGORITHM

This system uses very simple algorithm to randomize the questions and generate the question paper. The standard way to get random rows from a table is to use query such as: SELECT TOP 3 * FROM TABLE ORDER BY NEWID WHERE UNIT=1 AND MARKS=8. This query gives us top 3 questions of unit 1 out of all the randomized questions from the table which has marks weight 8. The key here is the NEWID function, which generates a globally unique identifier (GUID) in memory for each row. By definition, the GUID is unique and fairly random; so, when you sort by that GUID with the ORDER BY clause, you get a random ordering of the rows in the table. This query is very much useful if we have thousands of questions of single subject. And it works accurately too. Since this system uses the North Maharashtra University paper pattern the queries are designed such that they will create the desired output thus ensuring errorless generation of question paper. The paper pattern has 5 Units and each unit carries marks weight of 24 marks. So there can be three 8 marks questions or as per the requirement of the administrator but the total weight of marks would be 24. The questions in the database are stored in respective tables. Each subject has a table assigned in the

database. And each question in the table would have id, marks and unit number that makes selection of question from respective unit easy for the system. This algorithm is straight forward and easy to understand.

IV. SYSTEM DESIGN

Following are the diagrams of the system:

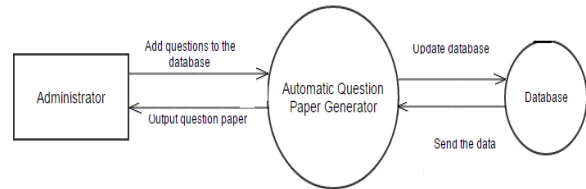


Figure 2. DFD Diagram

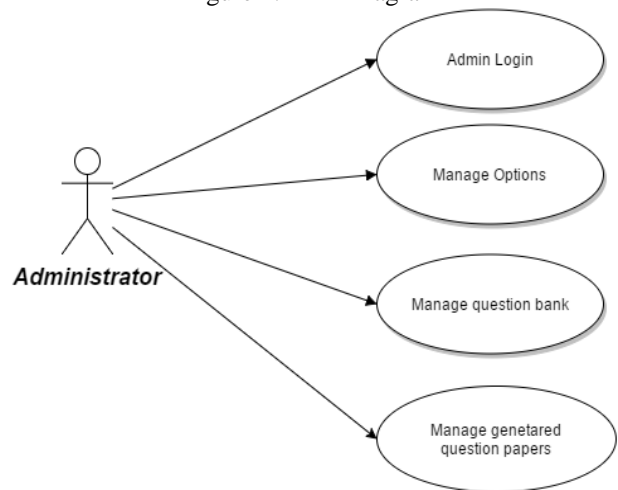


Figure 3. Use Case Diagram

V. SYSTEM ANALYSIS

The whole process of creating question paper, was done manually till date. Processing the question paper i.e. researching and allocating the weight to the questions is a tedious task till date.

A. Drawbacks of current systems

- The current system is very time consuming.
- It is very difficult to analyze the questions manually.
- Too much time is consumed in the process of creating question papers of more subjects.
- So many questions are evaluated before finalizing the questions for the question paper.
- The chances of paper leakage are more in current system as compared to proposed system.
- Paper processing takes more time as it is done manually.

B. Proposed System

The automatic question paper generator has following features:

- In comparison to the present system the proposed system will be less time consuming and is more efficient.
- Analysis will be very easy in proposed system as it

is automated.

- The question paper which is generated, will be accurate to the administrator's input.
- The proposed system is very secure as no chances of leakage of question paper as it is dependent on the administrator only.
- The generated question paper can be edited to suit the requirements.

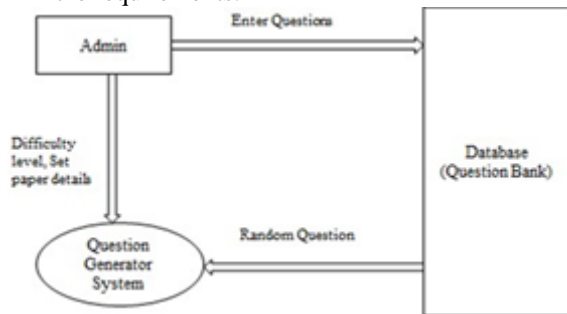


Figure 4. System Architecture

One can make many sets of paper from one database. This software assures no duplicity of questions in database. Questions will have marks weight upon which the administrator can generate various question paper sets, having questions with different marks weight. Question paper is generated with great ease and accuracy in less than a minute. Also, the concern remains is how the current technologies would also help the instructors automatically generate the different sets of questions from time to time without being concern about repetition and duplication from the past exam while the database keeps growing. These automated systems provide cost saving and time-efficient solutions. Automated system has proved to be very much helpful in generating question paper rather than doing it by itself by the professors of the university.

C. Working of the system

- Administrator first logs into the system.
- Administrator selects the respective subject from the given choice of subjects.
- Then selects the required marks weight for each unit for generating the desired questions from the database.
- The system then fires the custom queries which are created when the admin selects the subject and marks weight.
- Typically for security reason the connection is closed after a query is fired. Before execution of query the connection is opened and connection is closed after execution of the query. This is done to each and every query to ensure security in the system. This all happens within just one second.
- Then it generates the question paper and shows the randomly selected questions to the admin in the panel to ensure there is no error.
- The admin has option to save it as .docx, so that admin can edit as per the requirements and print it or can save it as PDF.

VI. LITERATURE SURVEY

Automatic question paper generation has been a field of interest for many researchers and a lot of research has been done for question paper generation system. Researchers are very much interested in this field and they are showing their interest too. The reason behind the interest is basically the time consumed in generating the paper by the professors. And every researcher has undergone the university processes. The paper presented by Mr. MihirJoisher, Mr. SwapnilGhagare, Ms. Mittal Patel and Mr. RiteshRathi describes a shuffling algorithm which randomizes the questions from the database. Their algorithm is straight forward and easy to understand and implement in other systems too. The paper presented by SurajKamya, MadhuriSachdeva, NavdeepDhaliwa and Sonit Singh proposed a system based on Fuzzy Logic in which all parameters were categorized based upon some logic so that the system can be easily acquainted with them. Drawback of this system was that it could only provide results on the basis of analytical and descriptive format; it could not provide Multiple Choice Questions. The paper presented by Vijay KrishanPurohit', Abhijeet Kumar', AsmaJabeen, Saurabh Srivastava, R H Goudar ,Shivanagowda proposed a system "Design of Adaptive Question Bank Development and Management System" that was an adaptive system but the data entered is assumed to be error free which could affect the overall accuracy of the system. The paper presented by Noor Hasimah Ibrahim Teo, Nordin Abu Bakar, MohamadRezduanAbd Rashid proposed a system "Representing Examination Question Knowledge into Genetic Algorithm" in which text matching and question sorting was done by the system itself but one of the major limitations of this system was the total number of questions that could be added.

VII. CONCLUSION

The main purpose of this application is to describe automatic question paper generator using random algorithm for randomization. This system is desktop-based application system with several features mainly producing unduplicated sets of exam paper. The result shows the potential proofs of employment of such algorithm for this type of system. Our future effort is to employ different types of randomization as well as in addition to question generation we can enhance the same software by making provision to produce questions from simple text. We have also considered the importance of randomization in the task of paper generation. Our system has deployed an efficient algorithm which is totally randomized and avoids repetition of questions in consequent question papers, making it impossible to derive any pattern in the papers. Therefore, the resultant automated system for Question Paper Generation provides improvement in terms of controlled access to the resources, random generation of question papers and a secure platform.

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